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sometimes, if the action of the reagents has been only sufficient to fix the animals, they appear in Canada balsam like living animals.

The same method, the author says, has given him perfect results with many infusorians, heliozoans and rhizopods, as well as with *Hydra* and other fresh water forms. With these animals, however, the narcotization is not necessary, but the osmic acid should be increased.—F. C. KENYON.

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

Boston Society of Natural History.—February 17, 1897.—The following papers were announced: Prof. N. S. Shaler, "Subterranean Water of Southeastern New England;" Dr. C. R. Eastman, "On some Devonian Fish-beds of North America."

March 3.—The following papers were announced: Mr. T. A. Jagger, Jr., "Experimental Study of Mountain Building" (illustrated by models); Mr. J. B. Woodworth, "Geology of the Gay Head Cliff."

March 17.—The following paper was read: Mr. Frank Russell, "An Account of a Naturalist's Voyage down the Mackenzie."—SAMUEL HENSHAW, *Secretary*.

American Philosophical Society.—January 1, 1897.—Mr. Henry C. Mercer read a paper on "The Fossil Sloth of the Big Bone Cave, Tennessee."

February 19.—Prof. E. D. Cope presented a communication on "Some Paleozoic Vertebrates from the Middle States."

March 5.—Prof. Arthur W. Goodspeed exhibited some Recent Radiographs in comparison with the work of a year ago.

University of Pennsylvania.—February 15, 1897.—Program Demonstrations: "Some Types of Insects Injurious to Vegetation," Dr. S. C. Schmucker. Original Communications: "Hatching of Dragon-fly Eggs," Dr. Philip P. Calvert; "The Morphology of the Nucleolus," Dr. T. H. Montgomery. Reviews: Drs. Macfarlane and Harshberger.

March 1st.—Program Demonstrations: "The Method of Measuring the Time of Mental Processes," Dr. Lightner Witmer. Original Communications: "Reaction Time of Americans, Indians and Negroes," Mr. Albert L. Lewis. Reviews: "Vertebrate Paleontology," Dr. E. D. Cope; "Physiological Chemistry," Dr. M. E. Pennington; "Botany," Dr. H. C. Porter.—H. C. PORTER, *Secretary*.

The Biological Society of Washington.—January 30, 1897.—The following communications were made: "Brief Informal Notes and Exhibition of Specimens;" C. Hart Merriam "On the Pribilof Island Hair Seal;" C. H. Townsend, "The Origin of the Alaskan Live Mammoth Story;" L. O. Howard, "Parasites of Shade-tree Insects in Washington;" Frank Benton, "The Giant Bee of India."

February 27.—The following communications were announced: "Brief Informal Notes and Exhibition of Specimens;" C. H. Townsend, "The Distribution and Migration of the Northern Fur Seal;" Lester F. Ward, "Description of Seven Species of Cycadoidea from the Iron Ore Deposits of Maryland;" Charles Louis Pollard, "What Constitutes a Type in Botany."

March 13.—The following communications were made: W. T. Vaughan and R. T. Hill, "The Lower Cretaceous Gryphæas of the Texas Region;" Chas. F. Dawson, "The Dissemination of Infectious Diseases by Insects;" William Palmer, "The Type (?) of a New-old Species;" Sylvester D. Judd, "Sexual Dimorphism in Crustacea."—FREDERIC A. LUCAS, *Secretary*.

Anthropological Society of Washington.—February 27, 1897.—The following program was presented: 1. "The Language Used in Talking to Domestic Animals," Dr. H. Carrington Bolton; 2. "Pre-historic Musical Instruments," Mr. Thomas Wilson.—WESTON FLINT, *Secretary*.

The Academy of Science of St. Louis.—January 18, 1897.—Professor H. S. Pritchett presented some results of observations on the recent sun-spots, prefacing his remarks by a general account of our present knowledge of the constitution of the surface of the sun, and of sun-spots in general, and illustrating his remarks by the use of lantern slides.

Two persons were elected to active membership.

February 1, 1897.—Professor L. H. Pammel read a paper embodying Ecological Notes on Some Colorado Plants, observing that botanists who have studied the Rocky Mountain flora have frequently commented on the interest attached to the plants from an ecological standpoint, but most perplexing to the systematist. It is not strange that this should be the case, since there are great differences in altitude and soil, and the relative humidity of the air varies greatly. This is a most prominent factor in the development of plant life. A cursory glance at the plains flora of eastern Colorado shows that there are representatives of a flora common from Texas to British America, and east

to Indiana. We should not for a moment suppose that the species are identical in structure, since the conditions under which they occur are so different. Attention was called to the great abundance of plants disseminated by the wind, as *Cycloloma*, *Salsola*, *Solanum rostratum*, *Populus*, *Cercocarpus*, "Fire-weeds," (*Epilobium spicatum* and *Arnica cordifolia*), *Hordeum jubatum*, *Elymus sitanion*, etc. Plant migration may be studied to better advantage in the irrigated districts of the west than elsewhere, partly because the water carries many seeds and fruits in a mechanical way, and partly because the soil is very favorable for the development of plants. Instances were cited where several foreign weeds are becoming abundant, as *Tragapogon porrifolius* and *Lactuca scariola*. The latter, known as an introduced plant for more than a quarter of a century, is common at an altitude of 7,500 feet in Clear Creek Cañon. Once having become acclimated it is easy to see how Prickly Lettuce is widely disseminated.

Collectors appreciate the great importance of giving more attention to conditions under which plants thrive, such as phases of development, soil, climate, and altitudinal distribution. Structures of plants are produced to meet certain conditions. Under extreme conditions, protective devices are more pronounced. In discussing some of the plants, Warming's classification into *Hydrophytes*, *Xerophytes*, *Halophytes*, and *Mesophytes*, was adopted. The *Mesophytes* of eastern Iowa were compared with some of the *Xerophytes* of western Iowa, such as *Yucca angustifolia*, *Mentzelia ornata*, *Liatris punctata*, etc. These increase in abundance in western Nebraska, and attain a maximum development in northern Colorado. In the foot-hills and mountains the *Metophytes* constitute a large class, although *Xerophytes* are common in dry, open, sunny places. The photosynthetic system is reduced to guard against excessive transpiration, which would otherwise take place at high altitudes. The thick rootstock of Alpine plants in dry, open places is an admirable protection against drouth and cold. In cañons where snow remains on the ground plants do not need this protection. *Halophytes* are not numerous in species and genera. *Hydrophytes* are abundant at higher altitudes, where they occur in marshes and along streams.

February 15, 1897.—Professor J. H. Kinealy presented a preliminary discussion of the Poley air lift pump, a device for pumping water from artesian wells by injecting into the pump tube, at a considerable depth below the surface of the water, bubbles of air from an air compressor.

Mr. Trelease exhibited two hair balls removed from the stomach of a bull in Mexico, and showed that they were composed of the pointed

barbed hairs of some species of prickly pear upon which the animal had unquestionably fed. Attention was called to similar balls from the stomachs of horses, which had been described in 1896 by Mr. Coville, of the United States Department of Agriculture.

March 1, 1897.—Mr. William H. Rush presented a demonstration of the formation of carbon dioxide and alcohol as a result of the intramolecular respiration of seeds and other vegetable structures in an atmosphere containing no free oxygen. The theory of the dissolution and reconstruction of the living nitrogenous molecules was explained in connection with the experiments, and the different behavior of these molecules when supplied with or deprived of free oxygen was indicated.

Mr. H. von Schrenk briefly described certain œdematous enlargements which he had observed at the beginning of the present winter, near the root tips of specimens of *Salix nigra*, growing along the edge of a body of water. The speaker compared these with the œdemata of tomato leaves and apple twigs, which were studied some years since at Cornell University.

Professor J. H. Kinealy exhibited a glass model illustrating the mode of action of the Poley air-lift pump, the efficiency of which he had discussed at the preceding meeting.

One name was proposed for active membership.—WILLIAM TRELEASE, *Recording Secretary*.

Torrey Botanical Club.—January 27, 1897.—The scientific program was as follows: Dr. H. H. Rusby, "Remarks on some Solanaceæ;" Mr. A. A. Tyler, "The Origin and Functions of Stipules;" Dr. J. K. Small, "*Aster gracilis* Nuttall;" Mr. George V. Nash, "New and Noteworthy American Grasses."

Dr. Rusby exhibited a number of solanaceous plants and remarked upon their relationships. It was pointed out that the general appearance and chemical and physiological characteristics of these plants frequently fail to indicate their structural affinities. *Cestrum* and *Sesaea*, *Atropa* and *Datura*, were cited as illustrations of the separation of otherwise naturally related groups through their possession respectively of baccate and capsular fruits. *Nicotiana* was referred to as connecting those tribes having a radial symmetry with the tribe Salpiglossidæ, having a bilateral symmetry, and thus connecting the family with the Labiales. The *Androcera* and *Andropeda* sections of the genus *Solanum* were instances of the appearance of this bilateral symmetry in a widely separated part of the family, where radial symmetry is the otherwise invariable rule.

Dr. Britton discussed the subject, and remarked upon this instance of development of two divisions of a group along different lines, in this case through baccate and capsular fruits. He cited similar parallelisms in other families, tending to produce different resulting characters—as in *Cupparidaceæ*; and remarked that an indication of the lines along which these genera have been derived may be read in these characters.

The second paper by Mr. A. A. Tyler, on “The Nature and Origin of Stipules,” presented conclusions derived from studies extending through several years. The subject was treated at length in the light of geological, morphological, anatomical and developmental evidence. Discussing Mr. Tyler’s paper, which will shortly be published in full, Dr. Britton remarked that “the outcome of this very important paper is most interesting; it emphasizes the significance of basal scales and those of buds and root stocks; and it is the more convincing, from the nicety with which it accords with the seemingly haphazard distribution of Stipules widely but irregularly here and there through the vegetable kingdom.”

Mrs. Britton discussed the paper further, referring to the different phases presented in *Fissidens*.

Of the remaining papers, that by Mr. Nash was read by title, and will appear in the *Bulletin*; and that by Dr. Small was, on account of the lateness of the hour, deferred till the next meeting.—EDWARD S. BURGESS, *Secretary*.

SCIENTIFIC NEWS.

The New Westminster *Daily Columbian* (B. C.) informs us of the death of MRS. ALICE BODINGTON, wife of Dr. G. F. Bodington, Medical Superintendent of the Provincial Asylum for the Insane. Even the comparatively few who were aware of Mrs. Bodington’s illness, from pneumonia, had no idea of there being any immediate danger. In fact, her illness was very brief, scarcely five days, and no dangerous symptoms were developed until Sunday. All that loving care and medical skill could do was unavailing, and, on Monday, February 15th, death released a noble soul from its bodily sufferings.

The deceased lady, who was a native of Suffolk, England, came to the Province, with her husband, about ten years ago, and, after a short residence in Vancouver, they removed to Hatzic, where the doctor engaged in farming, in connection with a country practice. About two